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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,861	03/23/2005	Georges Fremy	FR-AM 1889 NP	6318
31684	7590	03/06/2007	EXAMINER	
ARKEMA INC. PATENT DEPARTMENT - 26TH FLOOR 2000 MARKET STREET PHILADELPHIA, PA 19103-3222			NWAONICHA, CHUKWUMA O	
			ART UNIT	PAPER NUMBER
			1621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	10/528,861		FREMY ET AL.	
	Examiner		Art Unit	
	Chukwuma O. Nwaonicha		1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Current Status*

1. This action is responsive to Applicants' communication of 18 January 2007.
2. Claims 1-22 are pending in the application.
3. The 103 rejection in the previous Office Action dated 9/26/06 has been withdrawn in favor of a new rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cadot et al., {US 5,493,058} in view of Arretz, {US 4,927,972}, and further in view of Farlow et al., {US 2,402,614}.

Applicants claim a process for preparing a mercaptan comprising contacting a thioether and hydrogen sulphide, in the presence of hydrogen and a catalyst composition comprising a strong acid and at least one metal selected from group VIII of the Periodic Table; wherein all the variables are as defined in the claims.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Cadot et al. teach a process for the production of methyl mercaptan by catalytic hydrogenation of dimethyl disulphide on a catalyst based on sulphide(s) of at least one transition metal and an inorganic support (zeolites). The selectivity with respect to methyl mercaptan is considerably improved by working in the presence of water and/or hydrogen sulphide.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)**

Cadot et al. process for preparing mercaptans differs from the instantly claimed process in that applicants' process specifically employ thioether while Cadot et al. employed dimethyl disulphide. However, the secondary reference of Arretz. teaches a process that employed thioether. Specifically, Arretz teaches a catalytic process for the production of mercaptan from thioether, which comprises reacting a thioether, in which the sulfur atom of the thioether function is bonded, on the one hand to a tertiary carbon atom and, on the other hand, to a primary or secondary carbon atom, with hydrogen sulfide in the presence of an appropriate acid catalyst, especially an aluminosilicate or an ion-exchange resin while Farlow et al. teaches a catalytic hydrogenation process that employed thioether or dialkyl disulphide.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P.. §2142-2143)**

The instantly claimed process for preparing a mercaptan with thioether, hydrogen sulphide, hydrogen, an acid and metal catalysts would have been suggested to one of ordinary skill because one of ordinary skill wishing to obtain mercaptan is taught to employ the processes of Cadot et al., Arretz and Farlow et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by varying the catalyst composition and the concentration or the mole ratio of the reactants from the teachings of Cadot et al., Arretz and Farlow et al. to arrive at the instantly claimed process for preparing mercaptan. Said person would have been motivated to practice the teaching of the references cited because they demonstrate that mercaptan are useful in industrial applications. The Examiner notes that replacing one catalyst with another catalyst in a chemical reaction is a well-known chemical practice to optimize the process efficiency of the system and does not constitute a patentable distinction. Additionally, merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U. S. P. Q. 233 (C. C. P. A. 1955). Therefore, the instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

**No Claim is allowed.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is

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571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman k. Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.  
Patent Examiner  
Art Unit: 1621

A handwritten signature in black ink, appearing to read 'Thurman Page', with the initials 'Ror' written below it.

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Thurman Page,  
Supervisory Patent Examiner,  
Technology Center 1600